## 10/591490 IAP9 Rec'd PCT/PTO 01 SEP 2006

## SEQUENCE LISTING

| <110                         | )>        | KADOI<br>YAMAI           |            |           |           |              |           |            |           |           |           |           |            |           |           |
|------------------------------|-----------|--------------------------|------------|-----------|-----------|--------------|-----------|------------|-----------|-----------|-----------|-----------|------------|-----------|-----------|
| <120                         | )>        | REGUI                    | LATOF      | R FOI     | R AD      | I PONI       | ECTI      | N REC      | CEPTO     | OR E      | KPRES     | ssion     | Ŋ          |           |           |
| <130                         | )>        | SHIM                     | IZU-1      | L3116     | 5         |              |           |            |           |           |           |           |            |           |           |
| <150<br><150                 |           | PCT/0                    |            |           | 03744     | <del>1</del> |           |            |           |           |           |           |            |           |           |
| <150<br><151                 |           | US 60<br>2004            | •          | •         | 1         |              |           |            |           |           |           |           |            |           |           |
| <160                         | 0>        | 15                       |            |           |           |              |           |            |           |           |           |           |            |           |           |
| <170                         | )>        | Pater                    | ntIn       | vers      | sion      | 3.3          |           |            |           |           |           |           |            |           |           |
| <210<br><211<br><212<br><213 | L><br>2>  | 1<br>652<br>PRT<br>Mus 1 | musci      | ılus      |           |              |           |            |           |           |           |           |            |           |           |
| <4.00                        | )>        | 1                        |            |           |           |              |           |            |           |           |           |           |            |           |           |
| Met<br>1                     | Ala       | Glu                      | Ala        | Pro<br>5  | Gln       | Val          | Val       | Glu        | Thr<br>10 | Asp       | Pro       | Asp       | Phe        | Glu<br>15 | Pro       |
| Leu                          | Pro       | Arg                      | Gln<br>20  | Arg       | Ser       | Cys          | Thr       | Trp<br>25  | Pro       | Leu       | Pro       | Arg       | Pro<br>30  | Glu       | Phe       |
| Asn                          | Gln       | Ser<br>35                | Asn        | Ser       | Thr       | Thr          | Ser<br>40 | Ser        | Pro       | Ala       | Pro       | Ser<br>45 | Gly        | Gly       | Ala       |
| Ala                          | Ala<br>50 | Asn                      | Pro        | Asp       | Ala       | Ala<br>55    | Ala       | Ser        | Leu       | Ala       | Ser<br>60 | Ala       | Ser        | Ala       | Val       |
| Ser<br>65                    | Thr       | Asp                      | Phe        | Met       | Ser<br>70 | Asn          | Leu       | Ser        | Leu       | Leu<br>75 | Glu       | Glu       | Ser        | Glu       | Asp<br>80 |
| Phe                          | Ala       | a Arg                    | Ala        | Pro<br>85 | Gly       | Cys          | Val       | Ala        | Val<br>90 | Ala       | Ala       | Ala       | Ala        | Ala<br>95 | Ala       |
| Ser                          | Arg       | Gly                      | Leu<br>100 | Cys       | Gly       | Asp          | Phe       | Gln<br>105 | Gly       | Pro       | Glu       | Ala       | Gly<br>110 | Cys       | Val       |

| His        | Pro        | Ala<br>115 | Pro        | Pro        | Gln        | Pro        | Pro<br>120 | Pro        | Thr        | Gly        | Pro        | Leu<br>125 | Ser        | Gln        | Pro        |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Pro        | Pro<br>130 | Val        | Pro        | Pro        | Ser        | Ala<br>135 | Ala        | Ala        | Ala        | Ala        | Gly<br>140 | Pro        | Leu        | Ala        | Gly        |
| Gln<br>145 | Pro        | Arg        | Lys        | Thr        | Ser<br>150 | Ser        | Ser        | Arg        | Arg        | Asn<br>155 | Ala        | Trp        | Gly        | Asn        | Leu<br>160 |
| Ser        | Tyr        | Ala        | Asp        | Leu<br>165 | Ile        | Thr        | Lys        | Ala        | Ile<br>170 | Glu        | Ser        | Ser        | Ala        | Glu<br>175 | Lys        |
| Arg        | Leu        | Thr        | Leu<br>180 | Ser        | Gln        | Ile        | Tyr        | Glu<br>185 | Trp        | Met        | Val        | Lys        | Ser<br>190 | Val        | Pro        |
| Tyr        | Phe        | Lys<br>195 | Asp        | Lys        | Gly        | Asp        | Ser<br>200 | Asn        | Ser        | Ser        | Ala        | Gly<br>205 | Trp        | Lys        | Asn        |
| Ser        | Ile<br>210 | Arg        | His        | Asn        | Leu        | Ser<br>215 | Leu        | His        | Ser        | Lys        | Phe<br>220 | Ile        | Arg        | Val        | Gln        |
| Asn<br>225 | Glu        | Gly        | Thr        | Gly        | Lys<br>230 | Ser        | Ser        | Trp        | Trp        | Met<br>235 | Leu        | Asn        | Pro        | Glu        | Gly<br>240 |
| Gly        | Lys        | Ser        | Gly        | Lys<br>245 | Ser        | Pro        | Arg        | Arg        | Arg<br>250 | Ala        | Ala        | Ser        | Met        | Asp<br>255 | Asn        |
| Asn        | Ser        | Lys        | Phe<br>260 | Ala        | Lys        | Ser        | Arg        | Gly<br>265 | Arg        | Ala        | Ala        | Lys        | Lys<br>270 | Lys        | Ala        |
| Ser        | Leu        | Gln<br>275 | Ser        | Gly        | Gln        | Glu        | Gly<br>280 | Pro        | Gly        | Asp        | Ser        | Pro<br>285 | Gly        | Ser        | Gln        |
| Phe        | Ser<br>290 | Lys        | Trp        | Pro        | Ala        | Ser<br>295 | Pro        | Gly        | Ser        | His        | Ser<br>300 | Asn        | Asp        | Asp        | Phe        |
| Asp<br>305 | Asn        | Trp        | Ser        | Thr        | Phe<br>310 | Arg        | Pro        | Arg        | Thr        | Ser<br>315 | Ser        | Asn        | Ala        | Ser        | Thr<br>320 |
| Ile        | Ser        | Gly        | Arg        | Leu<br>325 | Ser        | Pro        | Ile        | Met        | Thr        | Glu        | Gln        | Asp        | Asp        | Leu<br>335 | Gly        |

| Asp        | Gly        | Asp        | Val<br>340 | His        | Ser        | Leu        | Val        | Tyr<br>345 | Pro        | Pro        | Ser        | Ala        | Ala<br>350 | Lys        | Met        |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Ala        | Ser        | Thr<br>355 | Leu        | Pro        | Ser        | Leu        | Ser<br>360 | Glu        | Ile        | Ser        | Asn        | Pro<br>365 | Glu        | Asn        | Met        |
| Glu        | Asn<br>370 | Leu        | Leu        | Asp        | Asn        | Leu<br>375 | Asn        | Leu        | Leu        | Ser        | Ser<br>380 | Pro        | Thr        | Ser        | Leu        |
| Thr<br>385 | Val        | Ser        | Thr        | Gln        | Ser<br>390 | Ser        | Pro        | Gly        | Ser        | Met<br>395 | Met        | Gln        | Gln        | Thr        | Pro<br>400 |
| Cys        | Tyr        | Ser        | Phe        | Ala<br>405 | Pro        | Pro        | Asn        | Thr        | Ser<br>410 | Leu        | Asn        | Ser        | Pro        | Ser<br>415 | Pro        |
| Asn        | Tyr        | Ser        | Lys<br>420 | Tyr        | Thr        | Tyr        | Gly        | Gln<br>425 | Ser        | Ser        | Met        | Ser        | Pro<br>430 | Leu        | Pro        |
| Gln        | Met        | Pro<br>435 | Met        | Gln        | Thr        | Leu        | Gln<br>440 | Asp        | Ser        | Lys        | Ser        | Ser<br>445 | Tyr        | Gly        | Gly        |
| Leu        | Asn<br>450 | Gln        | Tyr        | Asn        | Cys        | Ala<br>455 | Pro        | Gly        | Leu        | Leu        | Lys<br>460 | Glu        | Leu        | Leu        | Thr        |
| Ser<br>465 | Asp        | Ser        | Pro        | Pro        | His<br>470 | Asn        | Asp        | Ile        | Met        | Ser<br>475 | Pro        | Val        | Asp        | Pro        | Gly<br>480 |
| Val        | Ala        | Gln        | Pro        | Asn<br>485 | Ser        | Arg        | Val        | Leu        | Gly<br>490 | Gln        | Asn        | Val        | Met        | Met<br>495 | Gly        |
| Pro        | Asn        | Ser        | Val<br>500 | Met        | Pro        | Ala        | Tyr        | Gly<br>505 | Ser        | Gln        | Ala        | Ser        | His<br>510 | Asn        | Lys        |
|            |            | 515        |            |            |            |            | 520        |            |            |            |            | 525        |            | Gln        |            |
| Ala        | Ser<br>530 | Val        | Asn        | Gly        | Arg        | Thr<br>535 | Leu        | Pro        | His        | Val        | Val<br>540 | Asn        | Thr        | Met        | Pro        |

| His Thr Ser Ala Met Asn Arg Leu Thr Pro Val Lys Thr Pro Leu Gln 545 550 560   |     |
|---|-----|
| Val Pro Leu Ser His Pro Met Gln Met Ser Ala Leu Gly Ser Tyr Ser<br>565 570 575  |     |
| Ser Val Ser Ser Cys Asn Gly Tyr Gly Arg Met Gly Val Leu His Gln<br>580 585 590  |     |
| Glu Lys Leu Pro Ser Asp Leu Asp Gly Met Phe Ile Glu Arg Leu Asp<br>595 600 605  |     |
| Cys Asp Met Glu Ser Ile Ile Arg Asn Asp Pro Met Asp Gly Asp Thr 610 615 620   |     |
| Leu Asp Phe Asn Phe Asp Asn Val Leu Pro Asn Gln Ser Phe Pro His 625 630 635 640   |     |
| Ser Val Lys Thr Thr His Ser Trp Val Ser Gly 645 650   |     |
| <210> 2 <211> 2103 <212> DNA <213> Mus musculus   |     |
| <220> <221> CDS <222> (7)(1965)  <400> 2  | ·   |
| gtcacc atg gcc gag gcg ccc cag gtg gtg gag acc gac ccg gac ttc<br>Met Ala Glu Ala Pro Gln Val Val Glu Thr Asp Pro Asp Phe<br>1 5 10         | 48  |
| gag ccg ctg ccc cgg cag cgc tcc tgt acc tgg ccg ctg ccc agg ccg Glu Pro Leu Pro Arg Gln Arg Ser Cys Thr Trp Pro Leu Pro Arg Pro 15 20 25 30 | 96  |
| gag ttt aac cag tcc aac tcg acc acc tcc agt ccg gcg ccg tcg ggc Glu Phe Asn Gln Ser Asn Ser Thr Thr Ser Ser Pro Ala Pro Ser Gly 35 40 45    | 144 |
| ggc gcg gcc gcc aac ccc gac gcc gcg gcg   | 192 |

| gct gtc agc acc<br>Ala Val Ser Thr<br>65 | gac ttt atg<br>Asp Phe Met       | agc aac ctg ag<br>Ser Asn Leu Se<br>70 | gc ctg ctg gag gag agt<br>er Leu Leu Glu Glu Ser<br>75     | 240   |
|--|----------------------------------|--|--|-------|
| gag gac ttc gcg<br>Glu Asp Phe Ala<br>80 | cgg gcg cca<br>Arg Ala Pro<br>85 | ggc tgc gtg gc<br>Gly Cys Val Al       | cc gtg gcg gcg gct<br>la Val Ala Ala Ala Ala<br>90         | 288   |
|  |                                  |  | ag ggc ccc gag gcg ggc<br>In Gly Pro Glu Ala Gly<br>110    | 336   |
|  |                                  |  | eg acc ggg ccg ctg tcg<br>ro Thr Gly Pro Leu Ser<br>125    | 384   |
|  |                                  |  | cc gcc gcg ggg cca ctc<br>la Ala Ala Gly Pro Leu<br>140    | 432   |
|  |                                  |  | gc cgc aac gcg tgg ggc<br>rg Arg Asn Ala Trp Gly<br>155    | 480   |
|  |                                  |  | cc atc gag agc tca gcc<br>la Ile Glu Ser Ser Ala<br>170    | 528   |
|  |                                  |  | ag tgg atg gtg aag agc<br>lu Trp Met Val Lys Ser<br>190    | 576   |
|  |                                  |  | ac agc tcg gcg ggc tgg<br>sn Ser Ser Ala Gly Trp<br>205    | 624 · |
|  |                                  |  | ac agc aag ttt att cga<br>is Ser Lys Phe Ile Arg<br>220    | 672   |
|  |                                  |  | gg tgg atg ctc aat cca<br>cp Trp Met Leu Asn Pro<br>235    | 720   |
|  |                                  |  | ga aga gct gcg tcc atg<br>rg Arg Ala Ala Ser Met<br>250    | 768   |
|  |                                  |  | gg cgg gct gct aag aaa<br>ly Arg Ala Ala Lys Lys<br>55 270 | 816   |
| aaa gca tct ctc                          | cag tct ggg                      | caa gag ggt co                         | ct gga gac agc cct ggg                                     | 864   |

| Lys | Ala               | Ser | Leu | Gln<br>275 | Ser | Gly | Gln | Glu | Gly<br>280 | Pro | Gly | Asp | Ser | Pro<br>285 | Gly |      |  |
|-----|-------------------|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|------|--|
|     | cag<br>Gln        |     |     |            |     |     |     |     |            |     |     |     |     |            |     | 912  |  |
|     | ttt<br>Phe        |     |     |            |     |     |     |     |            |     |     |     |     |            |     | 960  |  |
|     | acc<br>Thr<br>320 |     |     |            |     |     |     |     |            |     |     |     |     |            |     | 1008 |  |
|     | gga<br>Gly        |     |     |            |     |     |     |     |            |     |     |     |     |            |     | 1056 |  |
| _   | atg<br>Met        |     |     | _          | _   |     | _   | _   |            | _   |     | _   |     |            | _   | 1104 |  |
|     | atg<br>Met        |     |     |            | _   | _   |     |     |            |     |     | _   |     |            |     | 1152 |  |
|     | tta<br>Leu        |     |     |            |     |     |     |     |            |     |     |     |     |            |     | 1200 |  |
|     | cca<br>Pro<br>400 | _   |     | _          |     | _   | _   |     |            |     | _   |     |     |            |     | 1248 |  |
|     | cca<br>Pro        |     |     |            |     |     |     |     |            |     |     |     |     |            |     | 1296 |  |
|     | ccc<br>Pro        |     |     |            |     |     |     |     |            |     |     |     |     |            |     | 1344 |  |
|     | gga<br>Gly        |     |     |            |     |     |     |     |            |     |     |     |     |            |     | 1392 |  |
| _   | act<br>Thr        |     | -   |            |     |     |     |     | _          |     | _   |     | _   | _          | _   | 1440 |  |
|     | gga<br>Gly<br>480 |     | _   |            |     |     | -   |     | _          | _   |     |     |     | -          | _   | 1488 |  |

| atg ggc cct aat tcg gtc atg cca gcg tat ggc agc cag gca tct cat<br>Met Gly Pro Asn Ser Val Met Pro Ala Tyr Gly Ser Gln Ala Ser His<br>495 500 505 510 | 1536 |
|---|------|
| aac aaa atg atg aac ccc agc tcc cac acc cac cct gga cat gca cag<br>Asn Lys Met Met Asn Pro Ser Ser His Thr His Pro Gly His Ala Gln<br>515 520 525     | 1584 |
| caa acg gct tcg gtc aac ggc cgt acc ctg ccc cat gtg gtg aac acc<br>Gln Thr Ala Ser Val Asn Gly Arg Thr Leu Pro His Val Val Asn Thr<br>530 535 540     | 1632 |
| atg cct cac aca tct gcc atg aac cgc ttg acc ccc gtg aag aca cct Met Pro His Thr Ser Ala Met Asn Arg Leu Thr Pro Val Lys Thr Pro 545 550 555           | 1680 |
| tta caa gtg cct ctg tcc cac ccc atg cag atg agt gcc ctg ggc agc<br>Leu Gln Val Pro Leu Ser His Pro Met Gln Met Ser Ala Leu Gly Ser<br>560 565 570     | 1728 |
| tac tcc tcg gtg agc agc tgc aat ggc tat ggt agg atg ggt gtc ctc<br>Tyr Ser Ser Val Ser Ser Cys Asn Gly Tyr Gly Arg Met Gly Val Leu<br>575 580 585 590 | 1776 |
| cac cag gag aag ctc cca agt gac ttg gat ggc atg ttt att gag cgc<br>His Gln Glu Lys Leu Pro Ser Asp Leu Asp Gly Met Phe Ile Glu Arg<br>595 600 605     | 1824 |
| ttg gac tgt gac atg gag tcc atc att cgg aat gac ccc atg gat gga<br>Leu Asp Cys Asp Met Glu Ser Ile Ile Arg Asn Asp Pro Met Asp Gly<br>610 615 620     | 1872 |
| gat acc ttg gat ttt aac ttt gat aat gtg ttg ccc aac caa agc ttc<br>Asp Thr Leu Asp Phe Asn Phe Asp Asn Val Leu Pro Asn Gln Ser Phe<br>625 630 635     | 1920 |
| cca cac agt gtc aag act aca aca cac agc tgg gtg tca ggc taa Pro His Ser Val Lys Thr Thr Thr His Ser Trp Val Ser Gly 640 645 650                       | 1965 |
| gagtttagtg agcaggctac atttaaaagt ccttcagatt gtctgacagc aggaactgag   | 2025 |
| gagcagtcca aagatgccct tcacccctcc ttatagtttt caagattaaa aaaaaaaaaa   | 2085 |
| aaaaaaaaa aaaaaaaa  | 2103 |

<210> 3 <211> 652 <212> PRT <213> Mus musculus

| -1 | Λ | Λ | ` | 7 |
|----|---|---|---|---|

Met Ala Glu Ala Pro Gln Val Val Glu Thr Asp Pro Asp Phe Glu Pro 1 5 10 15

Leu Pro Arg Gln Arg Ser Cys Ala Trp Pro Leu Pro Arg Pro Glu Phe 20 25 30

Asn Gln Ser Asn Ser Thr Thr Ser Ser Pro Ala Pro Ser Gly Gly Ala
35 40 45

Ala Ala Asn Pro Asp Ala Ala Ala Ser Leu Ala Ser Ala Ser Ala Val 50 55 60

Ser Thr Asp Phe Met Ser Asn Leu Ser Leu Leu Glu Glu Ser Glu Asp 70 75 80

Phe Ala Arg Ala Pro Gly Cys Val Ala Val Ala Ala Ala Ala Ala Ala Ala 85 90 95

Ser Arg Gly Leu Cys Gly Asp Phe Gln Gly Pro Glu Ala Gly Cys Val 100 105 110

His Pro Ala Pro Pro Gln Pro Pro Pro Thr Gly Pro Leu Ser Gln Pro
115 120 125

Pro Pro Val Pro Pro Ser Ala Ala Ala Ala Ala Gly Pro Leu Ala Gly 130 135 140

Gln Pro Arg Lys Thr Ser Ser Ser Arg Arg Asn Ala Trp Gly Asn Leu 145 150 155 160

Ser Tyr Ala Asp Leu Ile Thr Lys Ala Ile Glu Ser Ser Ala Glu Lys 165 170 175

Arg Leu Thr Leu Ser Gln Ile Tyr Glu Trp Met Val Lys Ser Val Pro 180 185 190

Tyr Phe Lys Asp Lys Gly Asp Ser Asn Ser Ser Ala Gly Trp Lys Asn 195 200 205

| Ser        | Ile<br>210 | Arg        | His        | Asn        | Leu        | Ser<br>215 | Leu        | His        | Ser        | Lys        | Phe<br>220 | Ile        | Arg        | Val        | Gln        |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Asn<br>225 | Glu        | Gly        | Thr        | Gly        | Lys<br>230 | Ser        | Ser        | Trp        | Trp        | Met<br>235 | Leu        | Asn        | Pro        | Glu        | Gly<br>240 |
| Gly        | Lys        | Ser        | Gly        | Lys<br>245 | Ser        | Pro        | Arg        | Arg        | Arg<br>250 | Ala        | Ala        | Asp        | Met        | Asp<br>255 | Asn        |
| Asn        | Ser        | Lys        | Phe<br>260 | Ala        | Lys        | Ser        | Arg        | Gly<br>265 | Arg        | Ala        | Ala        | Lys        | Lys<br>270 | Lys        | Ala        |
| Ser        | Leu        | Gln<br>275 | Ser        | Gly        | Gln        | Glu        | Gly<br>280 | Pro        | Gly        | Asp        | Ser        | Pro<br>285 | Gly        | Ser        | Gln        |
| Phe        | Ser<br>290 | Lys        | Trp        | Pro        | Ala        | Ser<br>295 | Pro        | Gly        | Ser        | His        | Ser<br>300 | Asn        | Asp        | Asp        | Phe        |
| Asp<br>305 | Asn        | Trp        | Ser        | Thr        | Phe<br>310 | Arg        | Pro        | Arg        | Thr        | Ser<br>315 | Ala        | Asn        | Ala        | Ser        | Thr<br>320 |
| Ile        | Ser        | Gly        | Arg        | Leu<br>325 | Ser        | Pro        | Ile        | Met        | Thr<br>330 | Glu        | Gln        | Asp        | Asp        | Leu<br>335 | Gly        |
| Asp        | Gly        | Asp        | Val<br>340 | His        | Ser        | Leu        | Val        | Tyr<br>345 | Pro        | Pro        | Ser        | Ala        | Ala<br>350 | Lys        | Met        |
| Ala        | Ser        | Thr<br>355 | Leu        | Pro        | Ser        | Leu        | Ser<br>360 | Glu        | Ile        | Ser        | Asn        | Pro<br>365 | Glu        | Asn        | Met        |
| Glu        | Asn<br>370 | Leu        | Leu        | Asp        | Asn        | Leu<br>375 | Asn        | Leu        | Leu        | Ser        | Ser<br>380 | Pro        | Thr        | Ser        | Leu        |
| Thr<br>385 | Val        | Ser        | Thr        | Gln        | Ser<br>390 | Ser        | Pro        | Gly        | Ser        | Met<br>395 | Met        | Gln        | Gln        | Thr        | Pro<br>400 |
| Cys        | Tyr        | Ser        | Phe        | Ala<br>405 | Pro        | Pro        | Asn        | Thr        | Ser<br>410 | Leu        | Asn        | Ser        | Pro        | Ser<br>415 | Pro        |
| Asn        | Tyr        | Ser        | Lys<br>420 | Tyr        | Thr        | Tyr        | Gly        | Gln<br>425 | Ser        | Ser        | Met        | Ser        | Pro<br>430 | Leu        | Pro        |

| Gln        | Met        | Pro<br>435 | Met        | Gln        | Thr        | Leu        | Gln<br>440 | Asp        | Ser        | Lys        | Ser        | Ser<br>445 | Tyr        | Gly        | Gly        |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Leu        | Asn<br>450 | Gln        | Tyr        | Asn        | Cys        | Ala<br>455 | Pro        | Gly        | Leu        | Leu        | Lys<br>460 | Glu        | Leu        | Leu        | Thr        |
| Ser<br>465 | Asp        | Ser        | Pro        | Pro        | His<br>470 | Asn        | Asp        | Ile        | Met        | Ser<br>475 | Pro        | Val        | Asp        | Pro        | Gly<br>480 |
| Val        | Ala        | Gln        | Pro        | Asn<br>485 | Ser        | Arg        | Val        | Leu        | Gly<br>490 | Gln        | Asn        | Val        | Met        | Met<br>495 | Gly        |
| Pro        | Asn        | Ser        | Val<br>500 | Met        | Pro        | Ala        | Tyr        | Gly<br>505 | Ser        | Gln        | Ala        | Ser        | His<br>510 | Asn        | Lys        |
| Met        | Met        | Asn<br>515 | Pro        | Ser        | Ser        | His        | Thr<br>520 | His        | Pro        | Gly        | His        | Ala<br>525 | Gln        | Gln        | Thr        |
| Ala        | Ser<br>530 | Val        | Asn        | Gly        | Arg        | Thr<br>535 | Leu        | Pro        | His        | Val        | Val<br>540 | Asn        | Thr        | Met        | Pro        |
| His<br>545 | Thr        | Ser        | Ala        | Met        | Asn<br>550 | Arg        | Leu        | Thr        | Pro        | Val<br>555 | Lys        | Thr        | Pro        | Leu        | Gln<br>560 |
| Val        | Pro        | Leu        | Ser        | His<br>565 | Pro        | Met        | Gln        | Met        | Ser<br>570 | Ala        | Leu        | Gly        | Ser        | Tyr<br>575 | Ser        |
| Ser        | Val        | Ser        | Ser<br>580 | Cys        | Asn        | Gly        | Tyr        | Gly<br>585 | Arg        | Met        | Gly        | Val        | Leu<br>590 | His        | Gln        |
| Glu        | Lys        | Leu<br>595 | Pro        | Ser        | Asp        | Leu        | Asp<br>600 | Gly        | Met        | Phe        | Ile        | Glu<br>605 | Arg        | Leu        | Asp        |
| Cys        | Asp<br>610 | Met        | Glu        | Ser        | Ile        | Ile<br>615 | Arg        | Asn        | Asp        | Pro        | Met<br>620 | Asp        | Gly        | Asp        | Thr        |
| Leu<br>625 | Asp        | Phe        | Asn        | Phe        | Asp<br>630 | Asn        | Val        | Leu        | Pro        | Asn<br>635 | Gln        | Ser        | Phe        | Pro        | His<br>640 |

Ser Val Lys Thr Thr His Ser Trp Val Ser Gly 645 650

<210> 4

<211> 655

<212> PRT

<213> Homo sapiens

<400> 4

Met Ala Glu Ala Pro Gln Val Val Glu Ile Asp Pro Asp Phe Glu Pro 1 5 10 15

Leu Pro Arg Pro Arg Ser Cys Thr Trp Pro Leu Pro Arg Pro Glu Phe 20 25 30

Ser Gln Ser Asn Ser Ala Thr Ser Ser Pro Ala Pro Ser Gly Ser Ala 35 40 45

Ala Ala Asn Pro Asp Ala Ala Ala Gly Leu Pro Ser Ala Ser Ala Ala 50 55 60

Ala Val Ser Ala Asp Phe Met Ser Asn Leu Ser Leu Leu Glu Glu Ser 65 70 75 80

Glu Asp Phe Pro Gln Ala Pro Gly Ser Val Ala Ala Ala Val Ala Ala 85 90 95

Ala Ala Ala Ala Ala Thr Gly Gly Leu Cys Gly Asp Phe Gln Gly 100 105 110

Pro Glu Ala Gly Cys Leu His Pro Ala Pro Pro Gln Pro Pro Pro 115 120 125

Gly Pro Leu Ser Gln His Pro Pro Val Pro Pro Ala Ala Ala Gly Pro 130 135 140

Leu Ala Gly Gln Pro Arg Lys Ser Ser Ser Ser Arg Arg Asn Ala Trp 145 150 155 160

Gly Asn Leu Ser Tyr Ala Asp Leu Ile Thr Lys Ala Ile Glu Ser Ser 165 170 175

| Ala        | Glu        | Lys        | Arg<br>180 | Leu        | Thr        | Leu        | Ser        | Gln<br>185 | Ile        | Tyr        | Glu        | Trp        | Met<br>190 | Val        | Lys        |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Ser        | Val        | Pro<br>195 | Tyr        | Phe        | Lys        | Asp        | Lys<br>200 | Gly        | Asp        | Ser        | Asn        | Ser<br>205 | Ser        | Ala        | Gly        |
| Trp        | Lys<br>210 | Asn        | Ser        | Ile        | Arg        | His<br>215 | Asn        | Leu        | Ser        | Leu        | His<br>220 | Ser        | Lys        | Phe        | Ile        |
| Arg<br>225 | Val        | Gln        | Asn        | Glu        | Gly<br>230 | Thr        | Gly        | Lys        | Ser        | Ser<br>235 | Trp        | Trp        | Met        | Leu        | Asn<br>240 |
| Pro        | Glu        | Gly        | Gly        | Lys<br>245 | Ser        | Gly        | Lys        | Ser        | Pro<br>250 | Arg        | Arg        | Arg        | Ala        | Ala<br>255 | Ser        |
| Met        | Asp        | Asn        | Asn<br>260 | Ser        | Lys        | Phe        | Ala        | Lys<br>265 | Ser        | Arg        | Ser        | Arg        | Ala<br>270 | Ala        | Lys        |
| Lys        | Lys        | Ala<br>275 | Ser        | Leu        | Gln        | Ser        | Gly<br>280 | Gln        | Glu        | Gly        | Ala        | Gly<br>285 | Asp        | Ser        | Pro        |
| Gly        | Ser<br>290 | Gln        | Phe        | Ser        | Lys        | Trp<br>295 | Pro        | Ala        | Ser        | Pro        | Gly<br>300 | Ser        | His        | Ser        | Asn        |
| Asp<br>305 | Asp        | Phe        | Asp        | Asn        | Trp<br>310 | Ser        | Thr        | Phe        | Arg        | Pro<br>315 | Arg        | Thr        | Ser        | Ser        | Asn<br>320 |
| Ala        | Ser        | Thr        | Ile        | Ser<br>325 | Gly        | Arg        | Leu        | Ser        | Pro<br>330 | Ile        | Met        | Thr        | Glu        | Gln<br>335 | Asp        |
| Asp        | Leu        | Gly        | Glu<br>340 | Gly        | Asp        | Val        | His        | Ser<br>345 | Met        | Val        | Tyr        | Pro        | Pro<br>350 | Ser        | Ala        |
| Ala        | Lys        | Met<br>355 | Ala        | Ser        | Thr        | Leu        | Pro<br>360 | Ser        | Leu        | Ser        | Glu        | Ile<br>365 | Ser        | Asn        | Pro        |
| Glu        | Asn<br>370 | Met        | Glu        | Asn        | Leu        | Leu<br>375 | Asp        | Asn        | Leu        | Asn        | Leu<br>380 | Leu        | Ser        | Ser        | Pro        |
| Thr        | Ser        | Leu        | Thr        | Val        | Ser        | Thr        | Gln        | Ser        | Ser        | Pro        | Glv        | Thr        | Met        | Met        | Gln        |

Gln Thr Pro Cys Tyr Ser Phe Ala Pro Pro Asn Thr Ser Leu Asn Ser 405 410 415

Pro Ser Pro Asn Tyr Gln Lys Tyr Thr Tyr Gly Gln Ser Ser Met Ser 420 425 430

Pro Leu Pro Gln Met Pro Ile Gln Thr Leu Gln Asp Asn Lys Ser Ser 435 440 445

Tyr Gly Gly Met Ser Gln Tyr Asn Cys Ala Pro Gly Leu Leu Lys Glu 450 455 460

Leu Leu Thr Ser Asp Ser Pro Pro His Asn Asp Ile Met Thr Pro Val 465 470 475 480

Asp Pro Gly Val Ala Gln Pro Asn Ser Arg Val Leu Gly Gln Asn Val 485 490 495

Met Met Gly Pro Asn Ser Val Met Ser Thr Tyr Gly Ser Gln Ala Ser 500 505 510

His Asn Lys Met Met Asn Pro Ser Ser His Thr His Pro Gly His Ala 515 520 525

Gln Gln Thr Ser Ala Val Asn Gly Arg Pro Leu Pro His Thr Val Ser 530 540

Thr Met Pro His Thr Ser Gly Met Asn Arg Leu Thr Gln Val Lys Thr 545 550 555 560

Pro Val Gln Val Pro Leu Pro His Pro Met Gln Met Ser Ala Leu Gly
565 570 575

Gly Tyr Ser Ser Val Ser Ser Cys Asn Gly Tyr Gly Arg Met Gly Leu
580 585 590

Leu His Gln Glu Lys Leu Pro Ser Asp Leu Asp Gly Met Phe Ile Glu 595 600 605

Arg Leu Asp Cys Asp Met Glu Ser Ile Ile Arg Asn Asp Leu Met Asp 610 Gly Asp Thr Leu Asp Phe Asn Phe Asp Asn Val Leu Pro Asn Gln Ser 635 625 630 Phe Pro His Ser Val Lys Thr Thr His Ser Trp Val Ser Gly 645 650 <210> 5 <211> 5723 <212> DNA <213> Homo sapiens <220> <221> CDS (386)..(2353) <222> <400> 5 qcaqccqcca cattcaacag qcaqcagcgc agcgggcgcg ccgctgggga gagcaagcgg 60 cocqcqqcqt ccqtccqtcc ttccqtccgc ggccctgtca gctggagcgc ggcgcaggct 120 ctgccccggc ccggcggctc tggccggccg tccagtccgt gcggcggacc ccgaggagcc 180 tcgatgtgga tggccccgcg aagttaagtt ctgggctcgc gcttccactc cgccgcgcct 240 tecteccagt tteegteege tegeogeaec ggettegtte ceccaaatet eggacegtee 300 cttcgcgccc cctccccgtc cgcccccagt gctgcgttct ccccctcttg gctctcctgc 360 ggctggggga ggggcggggg tcacc atg gcc gag gcg cct cag gtg gtg gag 412 Met Ala Glu Ala Pro Gln Val Val Glu 460 ate gae eeg gae tte gag eeg etg eec egg eeg eeg teg tge ace tgg Ile Asp Pro Asp Phe Glu Pro Leu Pro Arg Pro Arg Ser Cys Thr Trp 10 15 25 ccg ctg ccc agg ccg gag ttt agc cag tcc aac tcg gcc acc tcc agc 508 Pro Leu Pro Arg Pro Glu Phe Ser Gln Ser Asn Ser Ala Thr Ser Ser 30 ccg gcg ccg tcg ggc agc gcg gct gcc aac ccc gac gcc gcg gcg ggc 556 Pro Ala Pro Ser Gly Ser Ala Ala Asn Pro Asp Ala Ala Ala Gly 45 55 ctg ccc tcg gcc tcg gct gcc gct gtc agc gcc gac ttc atg agc aac 604

Leu Pro Ser Ala Ser Ala Ala Ala Val Ser Ala Asp Phe Met Ser Asn

| ctg ag<br>Leu Se<br>75  | r Leu |  |  |  |  |  |  | 652  |
|-------------------------|-------|--|--|--|--|--|--|------|
| gtg go<br>Val Al<br>90  |       |  |  |  |  |  |  | 700  |
| ctg tg<br>Leu Cy        |       |  |  |  |  |  |  | 748  |
| cca co<br>Pro Pr        |       |  |  |  |  |  |  | 796  |
| ccc cc<br>Pro Pr        |       |  |  |  |  |  |  | 844  |
| tcg to<br>Ser Se<br>15  | r Arg |  |  |  |  |  |  | 892  |
| acc aa<br>Thr Ly<br>170 |       |  |  |  |  |  |  | 940  |
| atc ta<br>Ile Ty        |       |  |  |  |  |  |  | 988  |
| gac ag<br>Asp Se        |       |  |  |  |  |  |  | 1036 |
| tcc ct<br>Ser Le        |       |  |  |  |  |  |  | 1084 |
| agt to<br>Ser Se<br>23  | r Trp |  |  |  |  |  |  | 1132 |
| cct ag<br>Pro Ar<br>250 |       |  |  |  |  |  |  | 1180 |
| agc cg<br>Ser Ar        |       |  |  |  |  |  |  | 1228 |

| ( | gag<br>Glu | ggt<br>Gly | gct<br>Ala | 999<br>Gly<br>285 | gac<br>Asp | agc<br>Ser | cct<br>Pro | gga<br>Gly        | tca<br>Ser<br>290 | cag<br>Gln | ttt<br>Phe | tcc<br>Ser | aaa<br>Lys | tgg<br>Trp<br>295 | cct<br>Pro | gca<br>Ala | 1276 |  |
|---|------------|------------|------------|-------------------|------------|------------|------------|-------------------|-------------------|------------|------------|------------|------------|-------------------|------------|------------|------|--|
|   |            |            |            |                   |            |            |            | gat<br>Asp<br>305 |                   |            |            |            |            |                   |            |            | 1324 |  |
|   |            |            |            |                   |            |            |            | gct<br>Ala        |                   |            |            |            |            |                   |            |            | 1372 |  |
| ] |            |            |            |                   |            |            |            | gat<br>Asp        |                   |            |            |            |            |                   |            |            | 1420 |  |
|   |            |            |            |                   |            |            |            | gca<br>Ala        |                   |            |            |            |            |                   |            |            | 1468 |  |
|   |            |            |            |                   |            |            |            | gaa<br>Glu        |                   |            |            |            |            |                   |            |            | 1516 |  |
|   |            |            |            |                   |            |            |            | aca<br>Thr<br>385 |                   |            |            |            |            |                   |            |            | 1564 |  |
|   |            |            |            |                   |            |            |            | cag<br>Gln        |                   |            |            |            |            |                   |            |            | 1612 |  |
| ] |            |            |            | _                 | _          |            |            | ccc<br>Pro        | _                 |            |            |            |            |                   |            |            | 1660 |  |
|   |            |            |            |                   |            |            |            | cct<br>Pro        | Leu               |            | Gln        |            |            |                   |            |            | 1708 |  |
|   |            |            |            |                   |            |            |            | tat<br>Tyr        |                   |            |            |            |            |                   |            |            | 1756 |  |
|   |            |            |            |                   |            |            |            | ttg<br>Leu<br>465 |                   |            |            |            |            |                   |            |            | 1804 |  |
| 1 | Asn        | Asp<br>475 | Ile        | Met               | Thr        | Pro        | Val<br>480 | gat<br>Asp        | Pro               | Gly        | Val        | Ala<br>485 | Gln        | Pro               | Asn        | Ser        | 1852 |  |
|   |            |            |            |                   |            |            |            | atg<br>Met        |                   |            |            |            |            |                   |            |            | 1900 |  |

| 490 495 500 505   |      |
|---|------|
| acc tat ggc agc cag gca tct cat aac aaa atg atg aat ccc agc tcc<br>Thr Tyr Gly Ser Gln Ala Ser His Asn Lys Met Met Asn Pro Ser Ser<br>510 515 520 | 1948 |
| cat acc cac cct gga cat gct cag cag aca tct gca gtt aac ggg cgt<br>His Thr His Pro Gly His Ala Gln Gln Thr Ser Ala Val Asn Gly Arg<br>525 530 535 | 1996 |
| ccc ctg ccc cac acg gta agc acc atg ccc cac acc tcg ggt atg aac<br>Pro Leu Pro His Thr Val Ser Thr Met Pro His Thr Ser Gly Met Asn<br>540 545 550 | 2044 |
| cgc ctg acc caa gtg aag aca cct gta caa gtg cct ctg ccc cac ccc<br>Arg Leu Thr Gln Val Lys Thr Pro Val Gln Val Pro Leu Pro His Pro<br>555 560 565 | 2092 |
| atg cag atg agt gcc ctg ggg ggc tac tcc tcc gtg agc agc tgc aat<br>Met Gln Met Ser Ala Leu Gly Gly Tyr Ser Ser Val Ser Ser Cys Asn<br>570 585     | 2140 |
| ggc tat ggc aga atg ggc ctt ctc cac cag gag aag ctc cca agt gac<br>Gly Tyr Gly Arg Met Gly Leu Leu His Gln Glu Lys Leu Pro Ser Asp<br>590 595 600 | 2188 |
| ttg gat ggc atg ttc att gag cgc tta gac tgt gac atg gaa tcc atc<br>Leu Asp Gly Met Phe Ile Glu Arg Leu Asp Cys Asp Met Glu Ser Ile<br>605 610 615 | 2236 |
| att cgg aat gac ctc atg gat gga gat aca ttg gat ttt aac ttt gac<br>Ile Arg Asn Asp Leu Met Asp Gly Asp Thr Leu Asp Phe Asn Phe Asp<br>620 625 630 | 2284 |
| aat gtg ttg ccc aac caa agc ttc cca cac agt gtc aag aca acg aca<br>Asn Val Leu Pro Asn Gln Ser Phe Pro His Ser Val Lys Thr Thr Thr<br>635 640 645 | 2332 |
| cat agc tgg gtg tca ggc tga gggttagtga gcaggttaca cttaaaagta<br>His Ser Trp Val Ser Gly<br>650 655  | 2383 |
| cttcagattg tctgacagca ggaactgaga gaagcagtcc aaagatgtct ttcaccaact   | 2443 |
| cccttttagt tttcttggtt aaaaaaaaa acaaaaaaa aaaccctcct tttttcctt  | 2503 |
| tcgtcagact tggcagcaaa gacatttttc ctgtacagga tgtttgccca atgtgtgcag   | 2563 |
| gttatgtgct gctgtagata aggactgtgc cattggaaat ttcattacaa tgaagtgcca   | 2623 |
| aactcactac accatataat tgcagaaaag attttcagat cctggtgtgc tttcaagttt   | 2683 |
| tgtatataag cagtagatac agattgtatt tgtgtgtgtt tttggttttt ctaaatatcc   | 2743 |

2803 aattggtcca aggaaagttt atactctttt tgtaatactg tgatgggcct catgtcttga taagttaaac ttttgtttgt actacctgtt ttctgcggaa ctgacggatc acaaagaact 2863 2923 gaatctccat tctgcatctc cattgaacag ccttggacct gttcacgttg ccacagaatt 2983 cacatgagaa ccaagtagcc tgttatcaat ctgctaaatt aatggacttg ttaaactttt 3043 ggaaaaaaaa agattaaatg ccagctttgt acaggtcttt tctatttttt tttgtttatt 3103 ttgttatttg caaatttgta caaacattta aatggttcta atttccagat aaatgatttt 3163 tgatgttatt gttgggactt aagaacattt ttggaataga tattgaactg taataatgtt ttcttaaaac tagagtctac tttgttacat agtcagcttg taaattttgt ggaaccacag 3223 gtatttgggg cagcattcat aattttcatt ttgtattcta actggattag tactaatttt 3283 atacatgctt aactggtttg tacactttgg gatgctactt agtgatgttt ctgactaatc 3343 3403 ttaaatcatt gtaattagta cttgcatatt caacgtttca ggccctggtt gggcaggaaa gtgatgtata gttatggaca ctttgcgttt cttatttagg ataacttaat atgtttttat 3463 3523 gtatgtattt taaagaaatt tcatctgctt ctactgaact atgcgtactg catagcatca 3583 agtettetet agagacetet gtagteetgg gaggeeteat aatgtttgta gateagaaaa 3643 gggagatctg catctaaagc aatggtcctt tgtcaaacga gggattttga tccacttcac cattttgagt tgagctttag caaaagtttc ccctcataat tctttgctct tgtttcagtc 3703 caggtggagg ttggttttgt agttctgcct tgaggaatta tgtcaacact catacttcat 3763 3823 ctcattctcc cttctgccct gcagattaga ttacttagca cactgtggaa gtttaagtgg 3883 aaggagggaa tttaaaaaatg ggacttgagt ggtttgtaga atttgtgttc ataagttcag 3943 atgggtagca aatggaatag aacttactta aaaattgggg agatttattt gaaaaccagc 4003 tgtaagttgt gcattgagat tatgttaaaa gccttggctt aagaatttga aaatttcttt 4063 agcctgtagc aacctaaact gtaattccta tcattatgtt ttattacttt ccaattacct 4123 gtaactgaca gaccaaatta attggctttg tgtcctattt agtccatcag tattttcaag 4183 tcatgtggaa agcccaaagt catcacaatg aagagaacag gtgcacagca ctgttcctct tgtgttcttg agaaggatct aatttttctg tatatagccc acatcacact tgctttgtct 4243 tgtatgttaa ttgcatcttc attggcttgg tatttcctaa atgtttaaca agaacacaag 4303 tgttcctgat aagatttcct acagtaagcc agctgtattg taagcttccc accgtgatga 4363

tcatttttt gaagattcat tgaacagcca ccactctatc atcctcattt tggggcagtc 4423 caagacatag ctggttttag aaacccaagt tcctctaagc acagcctccc gggtatgtaa 4483 4543 ctgaacttgg tgccaaagta cttgtgtact aatttctatt actacgtact gtcactttcc 4603 tcccgtgcca ttactgcatc ataatacaag gaacctcaga gcccccattt gttcattaaa 4663 gaggcaacta cagccaaaat cactgttaaa atcttactac ttcatggagt agctcttagg aaaatatatc ttcctcctga gtctgggtaa ttatacctct cccaagcccc cattgtgtgt 4723 tgaaatcctg tcatgaatcc ttggtagctc tctgagaaca gtgaagtcca gggaaaggca 4783 tctggtctgt ctggaaagca aacattatgt ggcctctggt agtttttttc ctgtaagaat 4843 actgactttc tggagtaatg agtatatatc agttattgta catgattgct ttgtgaaatg 4903 tgcaaatgat atcacctatg cagccttgtt tgatttattt tctctggttt gtactgttat 4963 5023 taaaagcata ttgtattata gagctattca gatattttaa atataaagat gtattgtttc 5083 cgtaatatag acgtatggaa tatatttagg taatagatgt attacttgga aagttctgct 5143 ttgacaaact gacaaagtct aaatgagcac atgtatccca gtgagcagta aatcaatgga 5203 acateceaag aagaggataa ggatgettaa aatggaaate atteteeaae gatatacaaa ttggacttgt tcaactgctg gatatatgct accaataacc ccagccccaa cttaaaattc 5263 ttacattcaa gctcctaaga gttcttaatt tataactaat tttaaaagag aagtttcttt 5323 tctggtttta gtttgggaat aatcattcat taaaaaaaat gtattgtggt ttatgcgaac 5383 agaccaacct ggcattacag ttggcctctc cttgaggtgg gcacagcctg gcagtgtggc 5443 5503 caggggtggc catgtaagtc ccatcaggac gtagtcatgc ctcctgcatt tcgctacccg 5563 agtttagtaa cagtgcagat tccacgttct tgttccgata ctctgagaag tgcctgatgt 5623 tgatgtactt acagacacaa gaacaatctt tgctataatt gtataaagcc ataaatgtac ataaattatg tttaaatggc ttggtgtctt tcttttctaa ttatgcagaa taagctcttt 5683 attaggaatt ttttgtgaag ctattaaata cttgagttaa 5723

<sup>&</sup>lt;210> 6

<sup>&</sup>lt;211> 110

<sup>&</sup>lt;212> PRT

<sup>&</sup>lt;213> Mus musculus

<sup>&</sup>lt;400> 6

| Met<br>1                     | Ala          | Leu         | Trp        | Met<br>5  | Arg       | Phe       | Leu       | Pro        | Leu<br>10 | Leu       | Ala              | Leu       | Leu        | Phe<br>15 | Leu       |     |
|------------------------------|--------------|-------------|------------|-----------|-----------|-----------|-----------|------------|-----------|-----------|------------------|-----------|------------|-----------|-----------|-----|
| Trp                          | Glu          | Ser         | His<br>20  | Pro       | Thr       | Gln       | Ala       | Phe<br>25  | Val       | Lys       | Gln              | His       | Leu<br>30  | Cys       | Gly       |     |
| Ser                          | His          | Leu<br>35   | Val        | Glu       | Ala       | Leu       | Tyr<br>40 | Leu        | Val       | Cys       | Gly              | Glu<br>45 | Arg        | Gly       | Phe       |     |
| Phe                          | Tyr<br>50    | Thr         | Pro        | Met       | Ser       | Arg<br>55 | Arg       | Glu        | Val       | Glu       | Asp<br>60        | Pro       | Gln        | Val       | Ala       |     |
| Gln<br>65                    | Leu          | Glu         | Leu        | Gly       | Gly<br>70 | Gly       | Pro       | Gly        | Ala       | Gly<br>75 | Asp              | Leu       | Gln        | Thr       | Leu<br>80 |     |
| Ala                          | Leu          | Glu         | Val        | Ala<br>85 | Gln       | Gln       | Lys       | Arg        | Gly<br>90 | Ile       | Val              | Asp       | Gln        | Cys<br>95 | Cys       |     |
| Thr                          | Ser          | Ile         | Cys<br>100 | Ser       | Leu       | Tyr       | Gln       | Leu<br>105 | Glu       | Asn       | Tyr              | Cys       | Asn<br>110 |           |           |     |
| <210<br><211<br><212<br><213 | L> 4<br>2> I | 160<br>DNA  | nusci      | ılus      |           |           |           |            |           |           |                  |           |            |           |           |     |
| <220<br><221<br><222         | L> C         | DS<br>(75). | . (40      | )7)       |           |           |           |            |           |           |                  |           |            |           |           |     |
| <400<br>gago                 |              |             | gato       | eget      | a ca      | atca      | ıaaaa     | a cca      | ıtcaç     | ıcaa      | gcag             | gaag      | gcc t      | atct      | tccag     | 60  |
| gtta                         | ittgt        | tt c        | aac        |           |           |           |           |            |           |           | ctg<br>Leu       |           |            |           |           | 110 |
|                              |              |             |            |           |           |           |           |            |           |           | gct<br>Ala       |           |            |           |           | 158 |
|                              |              |             |            |           |           |           |           |            |           |           | tac<br>Tyr<br>40 |           |            |           |           | 206 |

| Glu Arg Gly   | ttc ttc<br>Phe Phe                       |                         |   |                        | rg Arg                  |   |                  |                   | 254 |
|---|--|-------------------------|---|------------------------|-------------------------|---|------------------|-------------------|-----|
| cca caa gtg<br>Pro Gln Val  |  |                         |   |                        |                         |   |                  |                   | 302 |
| ctt cag acc<br>Leu Gln Thr  |  |                         |   |                        |                         |   |                  |                   | 350 |
| gat cag tgc<br>Asp Gln Cys<br>95  | _  | _                       | _   |                        | _                       |   |                  |                   | 398 |
| tgc aac tag<br>Cys Asn<br>110   | acccacc                                  | act accc                | agccta (                                  | ccctctg                | gca atg                 | aataaaa                                   |                  |                   | 447 |
| cctttgaatg  | agg                                      | ,                       |   |                        |                         |   |                  |                   | 460 |
| <210> 8<br><211> 110<br><212> PRT   |  |                         |   |                        |                         |   |                  |                   |     |
|   | sapiens                                  |                         |   |                        |                         |   |                  |                   |     |
|   | sapiens                                  |                         |   |                        |                         |   |                  |                   |     |
| <213> Homo  | -  | Arg Leu                 | Leu Pro                                   | Leu Le<br>10           | eu Ala                  | Leu Leu                                   | Ala<br>15        | Leu               |     |
| <213> Homo <400> 8  Met Ala Leu   | Trp Met<br>5                             |                         |   | 10                     |                         |   | 15               |                   |     |
| <213> Homo <400> 8  Met Ala Leu 1   | Trp Met 5                                | Ala Ala                 | Ala Phe<br>25                             | 10<br>: Val As         | sn Gln                  | His Leu<br>30                             | 15<br>Cys        | Gly               |     |
| <213> Homo <400> 8  Met Ala Leu 1  Trp Gly Pro  Ser His Leu                 | Trp Met<br>5<br>Asp Pro<br>20<br>Val Glu | Ala Ala                 | Ala Phe<br>25<br>Tyr Let<br>40            | 10<br>Val As           | sn Gln<br>/s Gly        | His Leu<br>30<br>Glu Arg<br>45            | 15<br>Cys<br>Gly | Gly<br>Phe        |     |
| <213> Homo <400> 8  Met Ala Leu 1  Trp Gly Pro  Ser His Leu 35  Phe Tyr Thr | Trp Met 5  Asp Pro 20  Val Glu  Pro Lys  | Ala Ala Ala Leu Thr Arg | Ala Phe<br>25<br>Tyr Leu<br>40<br>Arg Glu | 10<br>Val As<br>Val Cy | ys Gly Lu Asp 60 Ly Ser | His Leu<br>30<br>Glu Arg<br>45<br>Leu Gln | Cys Gly Val      | Gly<br>Phe<br>Gly |     |

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Thr Ser Ile Cys Ser Leu Tyr Gln Leu Glu Asn Tyr Cys Asn

<210> 10 <211> 22

| <212><br><213>            | DNA<br>Artificial                           |    |
|---------------------------|---|----|
| <220><br><223>            | an artificially synthesized primer sequence |    |
| <400><br>acgttg           | 10<br>ggaga gtcatcccgt at<br>,              | 22 |
| <210><211><211><212><213> |   |    |
| <220><br><223>            | an artificially synthesized primer sequence |    |
| <400><br>ctctgt           | .11<br>gtgg atgcggaaga t                    | 21 |
| <210><211><211><212><213> | 12<br>25<br>DNA<br>Artificial               |    |
| <220><br><223>            | an artificially synthesized probe sequence  |    |
| <400><br>cctgct           | 12<br>acat ggccacagac cacct                 | 25 |
| <210><211><211><212><213> |   |    |
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